



IFC

**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of

Docket No: Q96434

Masaaki HIRANO, et al.

Appln. No.: 10/588,485

Group Art Unit: 1614

Confirmation No.: 8206

Examiner: not yet assigned

Filed: August 4, 2006

For: PROPANE-1, 3-DIONE DERIVATIVE OR SALT THEREOF

**INFORMATION DISCLOSURE STATEMENT**  
**UNDER 37 C.F.R. §§ 1.97 and 1.98**

**MAIL STOP AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In accordance with the duty of disclosure under 37 C.F.R. § 1.56, Applicants hereby notify the U.S. Patent and Trademark Office of the documents which are listed on the attached PTO/SB/08 A & B (modified) form and/or listed herein and which the Examiner may deem material to patentability of the claims of the above-identified application.

One copy of each of the listed documents is submitted herewith, except for the following: U.S. patents and/or U.S. patent publications; and co-pending non-provisional U.S. applications filed after June 30, 2003.

The present Information Disclosure Statement is being filed: (1) No later than three months from the application's filing date; (2) Before the mailing date of the first Office Action on the merits (whichever is later); or (3) Before the mailing date of the first Office Action after

filing a request for continued examination (RCE) under §1.114, and therefore, no Statement under 37 C.F.R. § 1.97(e) or fee under 37 C.F.R. § 1.17(p) is required.

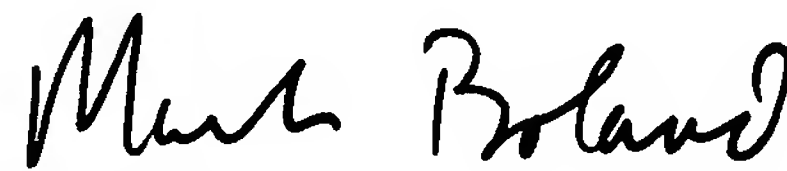
In compliance with the concise explanation requirement under 37 C.F.R. § 1.98(a)(3) for foreign language documents, Applicants submit the following explanations:

English language abstracts submitted herewith, constitute a concise explanation for the foreign language documents on the attached list.

The submission of the listed documents is not intended as an admission that any such document constitutes prior art against the claims of the present application. Applicants do not waive any right to take any action that would be appropriate to antedate or otherwise remove any listed document as a competent reference against the claims of the present application.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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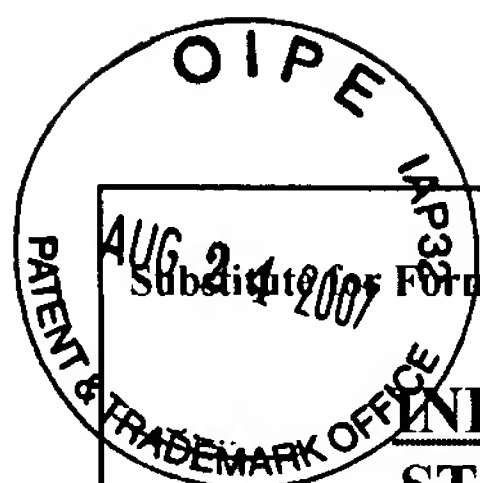
**65565**

CUSTOMER NUMBER

Date: August 24, 2007

**Non-English references**

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JP59064840



Subsidiary Form 1449 A &amp; B/PTO

# **INFORMATION DISCLOSURE STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 1 of 8

## *Complete if Known*

Application Number	10/588,485
Confirmation Number	8206
Filing Date	August 4, 2006
First Named Inventor	Masaaki HIRANO
Art Unit	1614
Examiner Name	not yet assigned
Attorney Docket Number	Q96434

## **U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		Number	Kind Code <sup>2</sup> (if known)		
		US 20030191164	A1	10-09-2003	Msaaki HIRANO et al.
		US 4062686		12-13-1977	Eastman Kodak Company
		US 4119466		10-10-1978	Eastman Kodak Company
		US 5202221	A	04-13-1993	Fuji Photo Film Co., Ltd.
		US 5616537	A	04-01-1997	Kumiai Chemical Industry Co., Ltd., et al.
		US 5770544	A	06-23-1998	Kumiai Chemical Industry Co., Ltd., et al.
		US 5817819	A	10-06-1998	Takeda Chemical Industries, Ltd.,
		US 5141841	A	08-25-1992	Vickers PLC
		US 5519136	A	05-21-1996	John R. Wade
		US 5055579		10-08-1991	Hoechst Aktiengesellschaft
		US 5593818	A	01-14-1997	Fuji Photo Film Co., Ltd
		US 6087503	A	07-11-2000	Takeda Chemical Industries Ltd.
		US 6162813	A	12-19-2000	Merck & Co., Inc
		US 6413503	B1	07-02-2002	BASF Aktiengesellschaft
		US 6153371	A	11-28-2000	Eastman Kodak Company
		US 5994051	A	11-30-1999	Eastman Kodak Company
		US 5747236	A	05-05-1998	Eastman Kodak Company
		US 5747235	A	05-05-1998	Eastman Kodak Company
		US 6051359	A	04-18-2000	Fuji Photo Film Co., Ltd.
		US 5593818	A	01-14-1997	Fuji Photo Film Co., Ltd.
		US 5385807	A	01-31-1995	Fuji Photo Film Co., Ltd.
		US 4950640		08-21-1990	Eastman Kodak Company
		US 6140384	A	10-31-2000	Fuji Photo Film Co., Ltd.
		US 5445930	A	08-29-1995	Fuji Photo Film Co., Ltd.
		US 5738982	A	04-14-1998	Fuji Photo Film Co., Ltd.
		US 6346534	B1	02-12-2002	Neurocrine Biosciences, Inc
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		US 20020177556	A1	11-28-2002	Jurgen Engel et al.
		US 20040029040	A1	02-12-2004	FUJI PHOTO FILM CO., LTD
		US 5104783		04-14-1992	Fuji Photo Film Co., Ltd.
		US 4636509		01-13-1987	Glaxo Group Limited
		US 4263393		04-21-1981	Eastman Kodak Company
		US 6413503	B1	07-02-2002	BASF Aktiengesellschaft
		US 6468711	B1	10-22-2002	Fuji Photo Film Co., Ltd.
		US 5064747		11-12-1991	Fuji Photo Film Co., Ltd.
		US 5112743		05-12-1992	Fuji Photo Film Co., Ltd.
		US 4966828		10-30-1990	Fuji Photo Film Co., Ltd.
		US 4946960		08-07-1990	Vickers PLC

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kind Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov), MPEP 901.04 or follow the hyperlink from the title of the document to the intranet. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST. 3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to indicate here if English language Translation is attached.

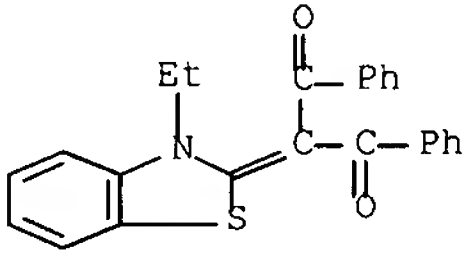
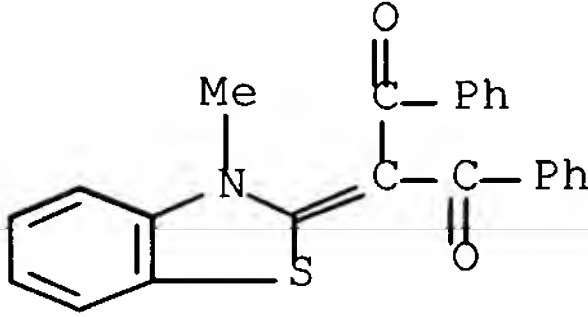
FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Translation <sup>6</sup>
		Country Code <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
		EP	333156	A2	09-20-1989	FUJI PHOTO FILM CO., LTD	abstract
		WO	9952888	A1	10-21-1999	AYUKO	abstract
		EP	780730	A2	06-25-1997	FUJI PHOTO FILM CO., LTD	Abstract
		WO	2005097090	A2	10-20-2005	ICOS CORPORATION	Abstract
		EP	713143	A2	05-22-1996	FUJI PHOTO FILM CO., LTD.	Abstract
		WO	9804562	A1	02-05-1998	BAYER AG	Abstract
		DD	224422	A1	03-07-1985	VEB FILMFABRIK WOLFEN	Abstract
		JP	2000-095767	A	04-04-2000	TAKEDA CHEM IND LTD	Abstract
		JP	09-061992	A	03-07-1997	FUJI PHOTO FILM CO., LTD.	Abstract
		JP	04-334369	A	11-20-1992	FUJI PHOTO FILM CO., LTD.	Abstract
		JP	01-205130	A	08-17-1989	FUJI PHOTO FILM CO., LTD	Abstract
		JP	2002-241758	A	08-28-2002	FUJI PHOTO FILM CO., LTD	Abstract
		JP	63-271341	A	11-09-1988	FUJI PHOTO FILM CO., LTD	Abstract
		JP	56-161538	A	12-11-1981	MITSUBISHI CHEM IND LTD	Abstract
		JP	2002-088284	A	03-27-2002	FUJI PHOTO FILM CO., LTD	Abstract
		JP	2004-061583	A	02-26-2004	FUJI PHOTO FILM CO., LTD	Abstract
		JP	2002-268239	A	09-18-2002	FUJI PHOTO FILM CO., LTD	Abstract
		JP	03-259150	A	11-19-1991	MITSUBISHI KASEI CORP	Abstract
		JP	02-079007	A	03-19-1990	SUMITOMO ELECTRIC IND LTD	Abstract
		JP	02-189547	A	07-25-1990	FUJI PHOTO FILM CO., LTD	Abstract
		JP	02-054268	A	02-23-1990	FUJI PHOTO FILM CO., LTD	Abstract
		JP	03-164722	A	07-16-1991	FUJI PHOTO FILM CO., LTD	Abstract
		JP	63-032542	A	02-12-1988	MITSUBISHI CHEM IND LTD	Abstract
		JP	62-006254	A	01-13-1987	MITSUBISHI CHEM IND LTD	Abstract
		JP	59-064840	A	04-12-1984	MITSUBISHI CHEM IND LTD	Abstract

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city, and/or country where published.	Translation <sup>6</sup>
		Simone, Oncology: Introduction, Cecil Textbook of Medicine, 20.sup.th Edition, vol. 1, pp. 1004-1010, 1996. ..	
		Huirne et al., PubMed Abstract (Lancet 358(9295):1793-803), Nov. 2001. . Gonadotropin-releasing-hormone-receptor antagonists	
		Junko Ishida et al., "Antitumor Agents. Part 214: .sup..dagger. Synthesis and Evaluation of Curcumin Analogues as Cytotoxic Agents" Bioorganic & Medicinal Chemistry 10 (2002) 3481-3487.	
		Chemistry of Heterocyclic Compounds (New York, NY, United States)(Translation of Khimiya Geterotsiklicheskikh Soedinenii) (2001), 37(5), 554-559 I.B. Dzvinchuk et al., "Formation of Unsymmetrical 2-(Diacylmethylene)-2,3-Dihydro-1H-Benzimidazoles During Acidolysis of 1-Benzoyl2-(.beta.-Benzoyloxy-.beta.-Phenylvinyl)-1H-Benzimidazole",	
		Jaro Komenda et al., Electrochemical Behavior and ESR Spectra of Nitro Substituted Mono-to and Debenzoylmethylenbenzthiazolines and Selenazolies, Collect. Czech. Chem. Commun. (1979), vol. 44(5), pp. 1540-51.	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

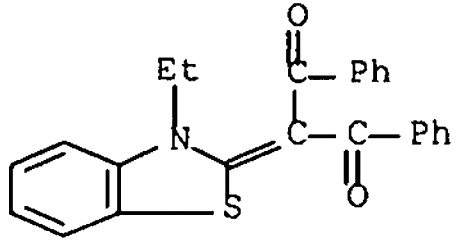
<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kind Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov), MPEP 901.04 or follow the hyperlink from the title of the document to the intranet. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST. 3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to indicate here if English language Translation is attached.



		<p>Collect. Czech. Chem. Commun. (1973), vol. 38(12), pp. 3616-3622. .</p> <p>A. Mistr et al., Organische Lichtempfindliche Stoffe V. Acylmethylenenderivate Heterocyclischer Stickstoffhaltiger Basen ALS Sensibilisatoren Lichtempfindlicher Polymerer, Organic light-sensitive substances. Acylmethylene derivatives of heterocyclic nitrogen-containing bases as sensitizers for light-sensitive polymers.</p> <p>ABS</p> <p>Condensation of quaternary salts of 2-methylbenzothiazoles or selenazoles with substituted benzyl chlorides in pyridine gave 18 mono- and diacylmethylene derivs. of the general formula I (Y = S, Se; R1 = Me, Et; R2 = H, p-OMe, m-NO2, p-NO2, p-I; R3 = H, R2C6H4(SH:CH)nCO; n = 0,1), which were examd as sensitizing agents for light -sensitive poly(vinyl cinnamate) (II) [24968-99-8] and poly(vinyl p-azidobenzoate) [29928-09-4]. A dropwise addition of 0.033 mole quaternary benzothiazole salt to 0.033 mole corresponding acyl chloride at 10.deg. followed by 1 hr strring at 20.deg. gave 49.9% 2-[(4-methoxybenzoyl)methylene]-3-ethylbenzothiazoline (I; Y = S; R1 = Et; R2 = p-OCH3; R3 = H; n = o) [51936-64-2]. The light sensitivity data obtained for II indicated that Se, present in the heterocyclic I ring, was more effective than S, and that the substitution on the benzoyl ring decreased the light sensitivity effect of I through the substituent series p-OMe, m-NO2, CH:CH, p-I, p-NO2.</p> 	
		<p>A. Mistr et al., Organische Lichtempfindliche Stoffe II. Benzoylmethylenenderivate Heretocyclischer Stickstoffhaltiger Basen ALS Sensibilisatoren Fur Lichtempfinliche Polymere, Collect. Czech. Commun. (1971), vol. 36(1), pp. 150-163.</p> <p>ABS</p> <p>Alkyl toluate salts of substituted and unsubstituted benzothiazole and benzoselenazole are treated with BzCl in pyridine to prepare I (Y = S or Se, R = H or Bz, R1 = Me or Et) and analogs containing a Cl, Me, Et, MeO, or benzo group on the 6-membered ring. I (R = Bz) had greater light sensitizing activity in poly(vinyl cinnamate) and poly(vinyl p-azidobenzoate) than did I (R = H), and the benzoselenazoline photosensitizers were more active than the benzothiazoline photosensitizers. Substituents at the 5-position on the aromatic ring had no effect and 6-methoxy substituents, a small pos. effect on sensitizing activity. Varying the R1 alkyl substituent affected solubility but not sensitizing activity.</p> 	

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		<p>G.I. Gaeva and K.S. Liadikov, Zh. Nauch. Prikl. Fotogr. Kinematogr. (1971) vol. 16(4), pp. 282-288.. Sensitization of poly(vinyl cinnamate) by derivatives of benzoyl- and dibenzoylmethylenebenzothiazoline and –benzoselenazoline. ABS Of the 22 benzothiazoline dyes and benzoselenazoline dyes studied, of the general formula (I) (where Y = S or Se, R = Me or Et, R1 = H or CPh, R2 = CPh, R3 = H, Cl, MeO, and 4,5- or 6,7-benzo group), 1-methyl-2- (dibenzoylmethylenenaphtho[1,2-d]thiazole and 3-methyl-5-methoxy-2-(dibenzoylmethylene)benzoselenazole had the highest sensitization effectiveness and increased the light sensitivity of poly(vinyl cinnamate) (I) 2.5 times. The spectral sensitivity of dyes and their optimum concentration in I were determined A sensitization mechanism was proposed.</p> 	
		The Chemistry and Biological Activity of Synthetic and Natural Compounds: Nitrogen-Containing Heterocycles, Vol. 1 (2006), pp. 243-248.	
		Chemistry of Heterocyclic Compounds (New York, NY, United States)(Translation of Khimiya Geterotsiklicheskih Soedinenii) (2001), 37(5), 554-559	
		<i>Bioorganic &amp; Medicinal Chemistry Letters, Volume 15, Issue 11, 2 June 2005, Pages 2894-2897</i> Synthesis, in vivo and in vitro biological activity of novel azaline B analogs	

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Zh. Organic Khim. (1994), 30(6), 909-14

LA Russian

Explanation: Found by CAS Search. CAS Search Result is set forth below.

L13 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2006 ACS on STN

AN 1995:373237 HCAPLUS Full-text

DN 123:169551

ED Entered STN: 24 Feb 1995

TI C-Monobenzoylation and dibenzoylation of 2-methylbenzimidazole by benzoyl chloride

AU Dzvinchuk, I. B.; Lozinskii, M. O.; Vypirailenko, A. V.

CS Inst. Org. Khim., Kiev, Ukraine

SO Zhurnal Organicheskoi Khimii (1994), 30(6), 909-14

CODEN: ZORKAE; ISSN: 0514-7492

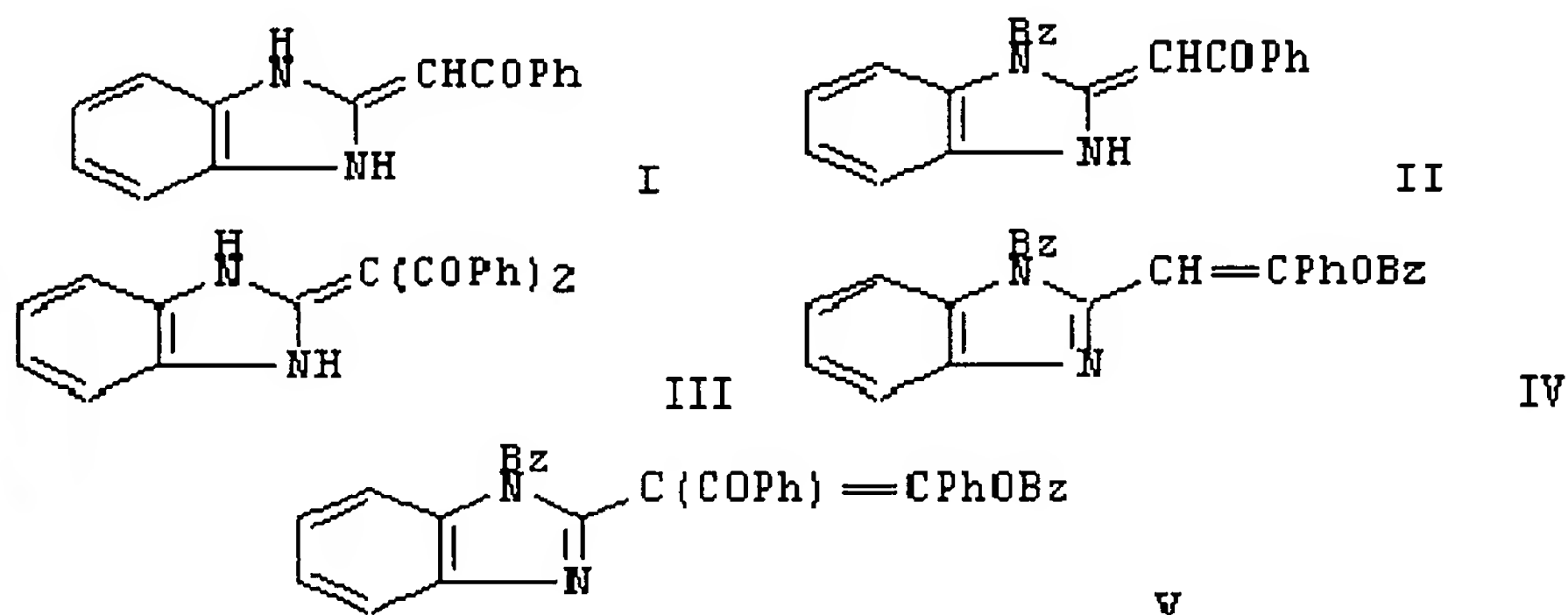
PB Nauka

DT Journal

LA Russian

CC 28-9 (Heterocyclic Compounds (More Than One Hetero Atom))

GI



AB Reaction of 2-methylbenzimidazole with BzCl in the presence of Et<sub>3</sub>N gave monobenzoyl (I), dibenzoyl (II and III), tribenzoyl (IV), and tetrabenzoyl derivs. (V). The interconversion of these products and the effect of temperature were examined

ST benzoylation methylbenzimidazole; benzimidazole methyl benzoylation

IT Benzoylation

(of methylbenzimidazole by benzoyl chloride)

IT 615-15-6, 2-Methylbenzimidazole

RL: RCT (Reactant); RACT (Reactant or reagent)  
(benzoylation of)

IT 98-88-4, Benzoyl chloride

RL: RCT (Reactant); RACT (Reactant or reagent)  
(benzoylation of methylbenzimidazole by)

IT 67264-61-3P 167281-71-2P 167281-72-3P 167281-73-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(benzoylation of methylbenzimidazole by benzoyl chloride)

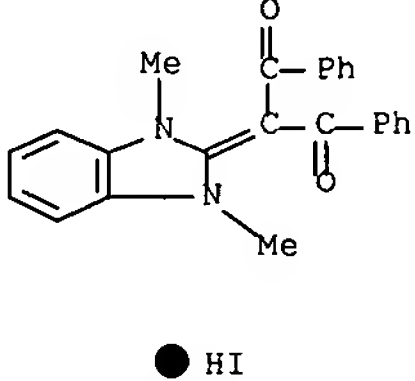
IT 74440-30-5P

RL: SPN (Synthetic preparation); PREP (Preparation)  
(benzoylation of methylbenzimidazole by benzoyl chloride)

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		<p>Bulletin de la Societe Chimique de France (1974), (3-4, Pt. 2), 525-8</p> <p>ABS</p> <p>Benzimidazole series. V. Behavior of 2-methylene-1,3-dimethylbenzimidazoline. Alkylation and acylation reaction.</p> <p>The title compound (I, X = CH<sub>2</sub>) underwent substitution with halides to give I [X = CHMe, CHCHMe<sub>2</sub>, CHCH<sub>2</sub>Ph, CHC<sub>6</sub>H<sub>3</sub>(NO<sub>2</sub>)<sub>2-2,4</sub>, CHI, 4,6-dichloro-1,3,5- triazin-2-ylmethylene, CHAc, CHBz, CHSO<sub>2</sub>Me, CAc<sub>2</sub>, CBz<sub>2</sub>, C(SO<sub>2</sub>Me)<sub>2</sub>], some of which were isolated as the 2-alkylbenzimidazolium salts. Dimeric acylation products were obtained with ClCO(CH<sub>2</sub>)<sub>n</sub>COCl (n = 0,2).</p>  <p>● HI</p>	
		Journal fuer Praktische Chemie (Leipzig) (1979), 321(2), 320-2	
		Collection of Czechoslovak Chemical Communications (1978), 43(3), 739-45	
		<p>Horumon to Rinsyo (Hormones and Clinical), 46, 46-57 (1998)</p> <p>ABS</p> <p>Gonadotropin releasing hormone is known as a hormone which controls secretion of sex hormones at the highest position, and controls secretion of anterior pituitary hormones luteinizing hormone and follicle-stimulating hormone and sex hormones in sex glands, via a receptor which is present in the anterior pituitary. Since antagonists specific and selective for this GnRH receptor regulate the action of GnRH and control secretion of subordinate LH and FSH and sex hormones, they are expected as preventive or therapeutic agents for sex hormone dependent diseases.</p>	
		<p>Molecular Endocrinology 14 671-681 2000</p> <p>Identification of Phe<sup>313</sup> of the Gonadotropin-Releasing Hormone (GnRH) Receptor as a Site Critical for the Binding of Nonpeptide GnRH Antagonists</p>	
		<p>Moleccular and Cellular Endocrin. 144 11-19 1998</p> <p>Functional analysis of GnRH receptor ligand binding using biotinylated GnRH derivatives</p>	
		<p>The Prostate 20 297-310 1992</p> <p>Effect of microcapsules of luteinizing hormone-releasing hormone antagonist SB-75 and somatostatin analog RC-160 on endocrine status and tumor growth in the Dunning R-3327H rat prostate cancer model.</p>	
		<p>Endocrinology 137 3430-3436 1996</p> <p>Chronic administration of the luteinizing hormone-releasing hormone (LHRH) antagonist cetorelix decreases gonadotrope responsiveness and pituitary LHRH receptor messenger ribonucleic acid levels in rats</p>	
		<p>J. Med. Chem. 2005, 48, 1169-1178</p> <p>3-[(2<i>R</i>)-Amino-2-phenylethyl]-1-(2,6-difluorobenzyl)-5-(2-fluoro-3-methoxyphenyl)- 6-methylpyrimidin-2,4-dione (NBI 42902) as a Potent and Orally Active Antagonist of the Human Gonadotropin-Releasing Hormone Receptor. Design, Synthesis, and in Vitro and in Vivo Characterization</p>	
		<p>Bioorg. Med. Chem. Lett. 14(9) 2269-2274 2004</p> <p>Synthesis and structure-activity relationships of (<i>R</i>)-1-alkyl-3-[2-(2-amino)phenethyl]-5-(2-fluorophenyl)-6-methyluracils as human GnRH receptor antagonists</p>	
		<p>Bioorg. Med. Chem. Lett. 15(10) 2519-2522 2005</p> <p>Uracils as potent antagonists of the human gonadotropin-releasing hormone receptor without atropisomers</p>	
		<p>Curr.Opin. Drug Discovery Dev. 7, 832-847, 2004</p> <p>Synthesis of orally active small-molecule gonadotropin-relea sing hormone antagonists</p>	
		<p>Bioorg. Med. Chem. Lett. 15(5) 1407-1411 2005</p> <p>Efficient synthesis of bicyclic oxazolino- and thiazolino[3,2-<i>c</i>]pyrimidine-5,7-diones and its application to the synthesis of GnRH antagonists</p>	

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		Bioorg. Med. Chem. Lett. 15(9) 2265-2269 2005 Benzimidazoles as non-peptide luteinizing hormone-releasing hormone (LHRH) antagonists. Part 3: Discovery of 1-(1H-benzimidazol-5-yl)-3-tert-butylurea derivatives	
		J. Med. Chem. 2004, 47, 3483-3486 3-(2-Aminoalkyl)-1-(2,6-difluorobenzyl)-5- (2-fluoro-3-methoxyphenyl)-6-methyl- uracils as Orally Bioavailable Antagonists of the Human Gonadotropin Releasing Hormone Receptor	
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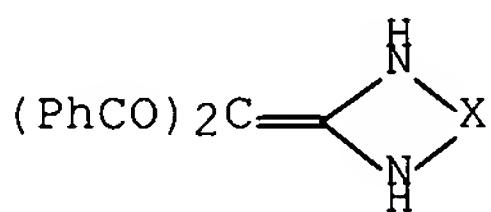
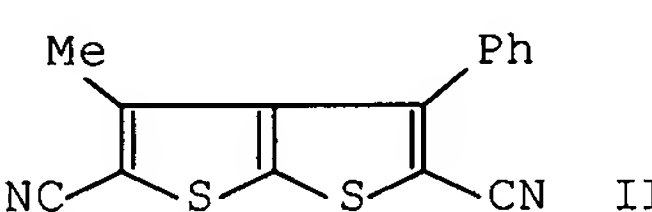
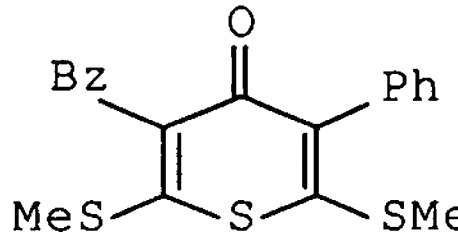
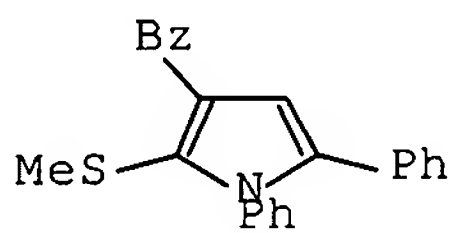
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		Bioorg. Med. Chem. Lett. 10 1723-1727 2000	
		Annual Reports in Medicinal Chemistry vol.39 99-110	
		J.Med.Chem. 1998, 41, 4190-4195 Discovery of a Novel, Potent, and Orally Active Nonpeptide Antagonist of the Human Luteinizing Hormone-Releasing Hormone (LHRH) Receptor	
		Angew. Chem. Int. Ed. Engl. 1997 36 2148-2161 Chemistry and Molecular Biology in the Search for New LHRH Antagonists	
		J.Med.Chem. 1989, 32, 2036-2038	
		Zeitschrift fuer Chemie (1980), 20(3), 96-7 Synthesis and reactions of 2,2-diacetylketene heteroacetals ABS  <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>I</p> </div> <div style="text-align: center;">  <p>II</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>III</p> </div> <div style="text-align: center;">  <p>IV</p> </div> </div> <p>The reactions of thioacetals and dithiolates were described. Thus, (RCO)2C:C(SMe)2 (R = Me, Ph) reacted with PhCH2NH2 to give (RCO)2C:CR1R2 (R1 = SMe, R2 = NHCH2Ph; R1 = R2 = NHCH2Ph) and (PhCO)2C:C(SMe)2 reacted with dinucleophiles, e.g., (H2NCH2)2 and o-(H2N)2C6H4, to give cyclic heteroacetals, e.g. I (X = CH2CH2 o-C6H4). Alkylation of MeCO(PhCO)C:C(S-)-2 with ClCH2CN gave thienothiopyran II via an open-chain S,S-acetal and subsequent cyclization. PhCOCH2COCH2Ph reacted with CS2 and NaH to cleave Na2S; alkylation of the product with MeI gave thiopyranone III. Treating (PhCOCH2)2 with PhNCS gave PhCOC(CH2COPh):C(NHPh)S- which was cyclized and methylated to give pyrrole IV.</p>	
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		J. Clinical Endocrinology and Metabolism(1992) 75 2 393-398	
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		Bioorganic & Medicinal Chemistry Letters(2005) 15 1609-1612	
		PNAS(2002) 99 961-965	
		JMC(1997) 40 3739-3748	
		JMC(2000) 43 784-796	
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	JMC(2000) 43 819-828	
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	Hormone Res.(1987) 28 88-103	
	andrologia(1990) 22 567-573	
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<b>Examiner Signature</b>		<b>Date Considered</b>	
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